

# SPIRUROID NEMATODES OF SYNHIMANTUS (DISPHARYNX) RAILLI-ET, HENRY AND SISOFF, 1912 (NEMATODA, ACUARIOIDEA, ACUARI- IDAE) FROM BIRDS OF PREY IN BEIJING, CHINA, WITH DESCRIPTION OF A NEW SPECIES

ZHANG Lu Ping<sup>1</sup>, LIU Fang<sup>2</sup>, SONG Jie<sup>2\*</sup>

1. College of Life Sciences, Hebei Normal University, Shijiazhuang 050016, China; E-mail: lupzhang@heinfo.net

2. College of Life Sciences, Beijing Normal University, Beijing 100875, China

**Abstract** Two species of *Synhimantus* (*Dispharynx*) were collected in birds of prey from the Beijing Raptor Rescue Center, Beijing, China. *Synhimantus* (*Dispharynx*) *oti* sp. nov. in *Otus scops* resembles *S. (D.) capitata* and *S. (D.) buccalis*. The new species differs from *S. (D.) capitata* in having bifurcated end of left spicule, in having a pair of sessile papillae in the inner side of fifth postanal papillae, and in the length of cordons. It differs from *S. (D.) buccalis* in the numbers of postanal papillae, in the length of left spicule (470 vs 730) and ratio of spicules (1:3 vs 1:4), in the shape and position of cervical papillae, and in the vulva position. *Synhimantus* (*Dispharynx*) *noctuae uzbekistanica* (Sultanov, 1950) in *Athene noctua* (type host) differs from the original description in having slightly waved instead of straight cordons. This is the first report of this species in China.

**Key words** Nematoda, Acuariidae, *Synhimantus* (*Dispharynx*), new species.

## 1 Introduction

The Beijing Raptor Rescue Center was opened on 14 Dec. 2001. It is a joint project of IFAW and Beijing Normal University, the first non-profit wildlife rescue and rehabilitation facility of its kind in China. Up to now, more than 800 injured and confiscated raptors (birds of prey) have been received for rescue and rehabilitation, most of them released back to the field. But some birds died, and examined for parasites. Two species of *Synhimantus* (*Dispharynx*) were collected from birds of prey, and were described herein.

## 2 Materials and Methods

Scops owl, *Otus scops* (Linnaeus, 1758) ( $n = 34$ ), little owl, *Athene noctua* (Scopoli, 1769) ( $n = 18$ ) died in Beijing Raptor Rescue Center, and were examined for parasites. Nematodes collected from esophagus and buccal cavities were fixed and preserved in 70% ethanol. They were later cleared in lactophenol for further examination. Drawings were made with the aid of a drawing tube. Measurements (minimum, maximum, followed by mean in parentheses) are given in micrometers unless otherwise stated. All specimens are deposited in College of Life Sciences, Beijing Normal University.

## 3 Descriptions

*Synhimantus* (*Dispharynx*) *oti* sp. nov. (Figs. 1–7)

Body cylindrical. Two pseudolabia present, each bearing 1 pair of large cephalic papillae and 1 amphid. Four distinct cordons straight, beginning at dorsal and ventral sides of oral opening, extending posteriorly to anterior part of muscular esophagus, recurrent anteriorly to some distance from anterior end of muscular esophagus. Buccal capsule long, transversely striated. Esophagus clearly divided into short anterior muscular part and long posterior glandular part. Muscular esophagus 7.9% total body length (TBL) in male and 5.7% TBL in female; glandular esophagus 32.6% TBL in male and 25.2% TBL in female. Nerve ring located at level of anterior part of muscular esophagus. Excretory pore posterior to nerve ring. Cervical papillae tricuspid, located posterior to cordons.

Male ( $n = 1$ ). Body length 8.64 mm. Maximum width 221. Cordons, 407 in total length; descending branch, 294 long; recurrent branch, 113 long. Buccal capsule 157 long. Muscular esophagus 686 long and 69 wide; glandular esophagus 2.82 mm long and 157 wide. Nerve ring 265 from anterior end; excretory pore 324 from anterior end, and cervical papillae 422

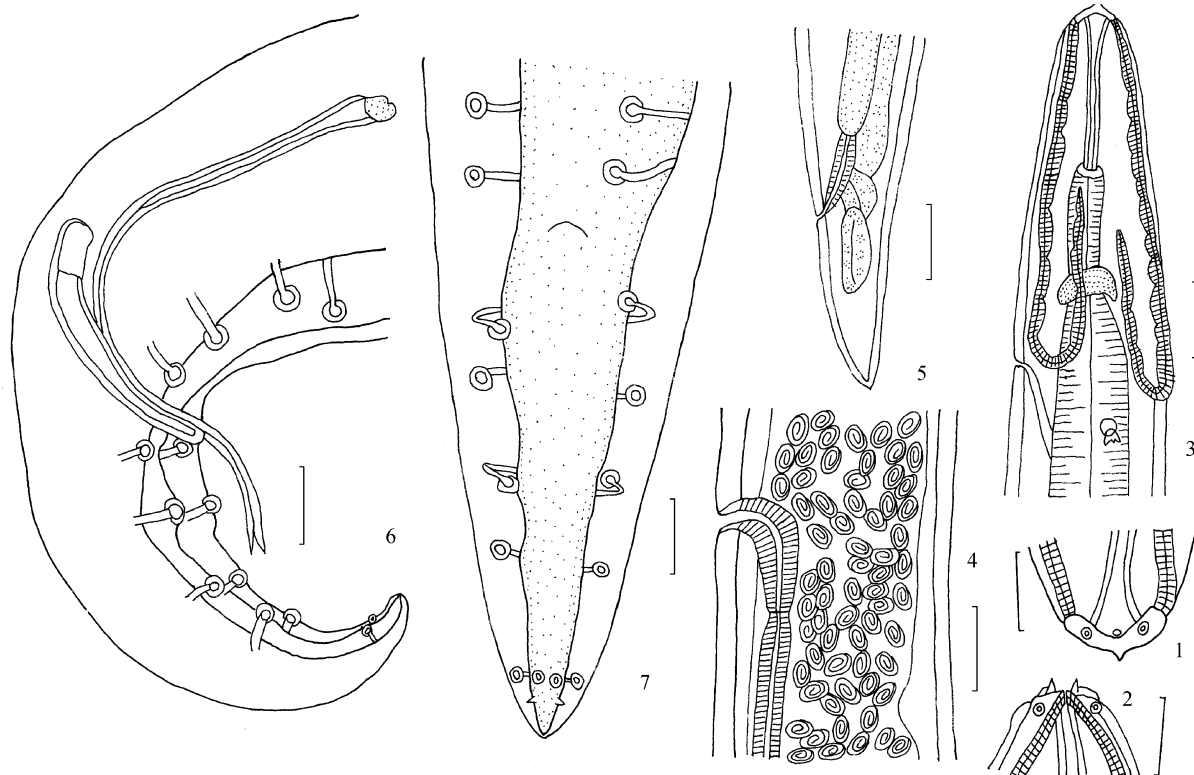
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\* Corresponding author.

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from anterior end. Posterior end of body highly coiled. Caudal alae well developed, 932 long. Tail bluntly rounded, 241 long. Pedunculate caudal papillae present, 4 pairs preanal and 5 pairs postanal. One pair of sessile papillae at the inner sides of fifth pair postanal papillae. Ventral surface of precloacal region with prominent longitudinal ridges, originating from first

pair of preanal papillae, and extending a considerable distance anteriorly. Spicules unequal and dissimilar. Left spicule long and slender, 470 long. Distal end of left spicule bifurcated. Right spicule short and thick, canoe shaped with enlarged proximal portion with irregular medial edges, 159 long. Ratio of left spicule: right spicule 1.0: 3.0.



Figs. 1-7. *Synhimantus (Dispharynx) oti* sp. nov. 1. Anterior extremity of female, lateral view. 2. Anterior extremity of female, ventral view. 3. Anterior end of female, lateral view. 4. Vulva region of female, lateral view. 5. Posterior end of female, lateral view. 6. Posterior end of male, lateral view. 7. Posterior end of male, ventral view. Scale bars: 1-2 = 50  $\mu$ m; 3-5 = 100  $\mu$ m; 6-7 = 50  $\mu$ m.

Female ( $n = 1$ ). Body length 12.9 mm. Maximum width 343. Cords, 706-765 in total length; descending branch, 490-515 long; recurrent branch, 191-274 long. Buccal capsule 196 long. Muscular esophagus 735 long and 103 wide; glandular esophagus 3.3 mm long and 191 wide. Nerve ring 386 from anterior end; excretory pore 490 from anterior end; and cervical papillae 613 from anterior end. Vulva located near the middle of body, 6.8 mm from anterior end, 52.7% TBL from anterior end. Tail long and cone-shaped, 263 long. Eggs ellipsoid, thick shelled, and embryonated, 41-43 long, 23-27 wide.

Type host. *Otus scops* (Linnaeus, 1758) (Aves, Strigiformes, Strigidae).

Type locality. Beijing, China (39°54' N, 116°28' E).

Site of infection. Esophagus.

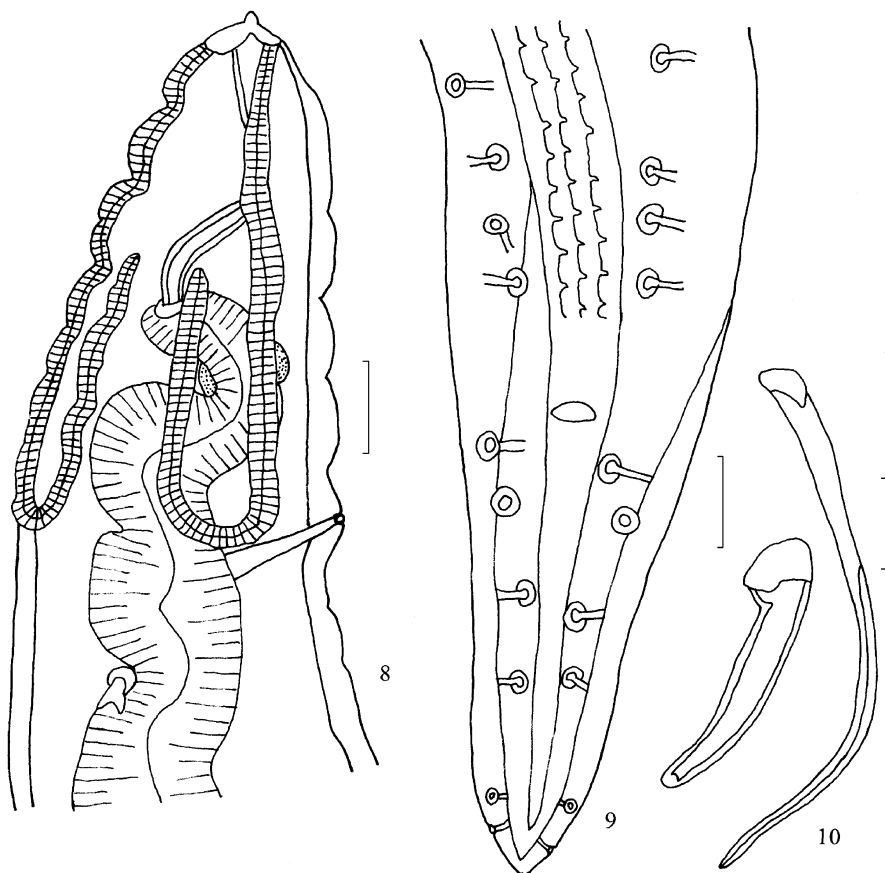
Holotype ♂, BNU No.04112201, paratype ♀, BNU No. 04112202.

Remarks. The species belongs to the subgenus *Dispharynx* in having four recurrent and non anastomosing cords. Twenty three species of *Dispharynx* were recorded by Skrjabin *et al.* (1965). Since then, 7 additional species have been added to the subgenus (Wang, 1966; Mawson, 1982; Cid del Prado *et al.* 1985; Mandour *et al.*, 1986; Gogoi and Smarmah; 1988). The new species is similar to *Synhimantus (Dispharynx) capitata* (Molin, 1860) from *Falco minutus* = *Accipiter superciliosus* (Linnaeus, 1766) (type host) in Brazil, *Otus bakkamoena semitorques* Temminck and Schlegel, 1884 in Japan (Yamaguti, 1935), *Otus sunia malayanus* (Hay, 1845) in China (Wang, 1976) by the body size, the numbers and arrangement of pedunculate caudal papillae, length of

spicules, and position of cervical papillae, but different from the latter in having bifurcated end of left spicule instead of pointed end of left spicule, in having a pair of sessile papillae in the inner side of fifth postanal papillae *vs.* absent in the latter, and in the length of cordons (407 in male and 706-765 in female *vs.* 297-314 in male and 296-400 in female). The new species is similar to *S. (D.) buccalis* (Gogoi and Sarmah, 1988) from *Acridothores tristis tristis* (Linnæus, 1766) in India by having bifurcate tip of left spicules, but differs from *S. (D.) buccalis* in having 5 pairs of postanal papillae instead of 4 pairs, in the length of left spicule (470 *vs.* 730) and ratio of spicules (1:3 *vs.* 1:4), in having tricuspid instead of bicuspid cervical papillae, in the cervical papillae located behind cordons *vs.* cervical papillae located between cordons, and in the vulva located near the middle of body *vs.* the vulva located near the posterior fifth of body.

*Synhimantus (Dispharynx) noctuae uzbekistanica* (Sultanov, 1950) **New record to China** (Figs. 8-10)

Three males were collected. Body cylindrical. Two pseudolabia present, each bearing 1 pair of large cephalic papillae and 1 amphid. Four distinct cordons slightly waved, beginning at dorsal and ventral sides of oral opening, extending posteriorly to anterior part of muscular esophagus, recurrent anteriorly to some distance from posterior part of buccal capsule. Buccal capsule long, transversely striated. Esophagus clearly divided into short anterior muscular part and long posterior glandular part. Muscular esophagus 4.4%-9.1% (6.7%) total body length (TBL) in male; glandular esophagus 35.6%-42.5% (37.7%) TBL in male. Nerve ring located at level of anterior part of muscular esophagus. Excretory pore posterior to nerve ring. Cervical papillae bicuspid, located posterior to cordons.



Figs. 8-10. *Synhimantus (Dispharynx) noctuae uzbekistanica* (Sultanov, 1950). 8. Anterior end of male, lateral view. 9. Posterior end of male, ventral view. 10. Spicules. Scale bars = 50  $\mu$ m.

Male ( $n = 3$ ). Body length 5.15-7.77 mm (6.6 mm). Maximum width 275-309 (289). Cordons, 377-466 (433) in total length; descending branch, 230-294 (272) long; recurrent branch, 147-172 (160) long. Buccal capsule 137-172 (152) long. Muscular

esophagus 343-515 (441) long, and 64-78 (72) wide; glandular esophagus 2.2-2.8 mm (2.5 mm) long, and 132-176 (152) wide. Nerve ring 186-230 (206) from anterior end; excretory pore 245-304 (278) from anterior end, and cervical papillae 328-392 (363) from

anterior end. Posterior end of body highly coiled. Caudal alae well developed. Tail bluntly rounded, 222-245 (234) long. Pedunculate caudal papillae present, 4 pairs preanal and 5 pairs postanal. Ventral surface of precloacal region with prominent longitudinal ridges, originating anterior to cloaca, and extending some distance anteriorly. Spicules unequal and dissimilar. Left spicule long and slender, 301-337 (317) long. Right spicule short and thick, canoe shaped, 142-186 (161) long. Ratio of left spicule: right spicule 1.0: 1.8-2.2 (1.0: 2.0).

Host. *Athene noctua* (Scopoli, 1769) (Aves: Strigiformes: Strigidae).

Locality. Beijing (39°54'N, 116°28'E), China.

Site of infection. Esophagus; buccal cavity.

Voucher specimens: 3 males.

The present form belongs to *Synhimantus* (*Dispharynx*) *noctuae uzbekistanica* (Sultanov, 1950) from *Athene noctua* (Scopoli, 1769) in Uzbekistan in general characters, but differs from the original description in having slightly waved instead of straight cordons.

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## 北京猛禽寄生合饰带属旋尾线虫的报道及一新种记述 (线虫纲, 针形总科, 针形科)

张路平<sup>1</sup> 刘芳<sup>2</sup> 宋杰<sup>2</sup>

1. 河北师范大学生命科学学院 石家庄 050016; E-mail: lupzhang@heinfo.net

2. 北京师范大学生命科学学院 北京 100875

**摘要** 记述了寄生于北京猛禽体内的2种合饰带属线虫, 其中一种为新种, 一种为中国新纪录种。标本保存于北京师范大学生命科学学院。

**红角合饰带线虫** *Synhimantus* (*Dispharynx*) *oti* **sp. nov.** (图1~7)

新种与 *Synhimantus* (*Dispharynx*) *capitata* (Molin, 1860) 和 *S. (D.) buccalis* (Gogoi and Sarmah, 1988) 较相似, 但新种在第5对肛后乳突内侧有1对无柄乳突, 左交合刺末端分叉, 饰带长而与 *S. (D.) capitata* 有明显区别。新种与 *S. (D.) buccalis* 的主要区别为肛后乳突5对, 左交合刺短, 颈乳突三叉状位于饰带之后, 阴门位于体中之前。

**关键词** 线虫纲, 针形科, 合饰带属, 咽饰带亚属, 新种。

中图分类号 Q959.174

正模 ♂, 副模 ♀, 采自红角 *Otus scops* (Linnaeus, 1758) 的食道。

词源: 新种的种名来自宿主名。

**纵纹腹小合饰带线虫** 乌兹别克斯坦亚种 *Synhimantus* (*Dispharynx*) *noctuae uzbekistanica* (**Sultanov, 1950**) 中国新纪录 (图8~10)

从纵纹腹小 *Athene noctua* (Scopoli, 1769) 的食道和口腔中采到3条雄虫。作者所采标本与 Sultanov (1950) 的原始描述基本相同, 但前者饰带稍有波浪状的弯曲而原始描述为直的。